REMARKS

The present application includes claims 1-2 and 4-21. Claims 1-21 were rejected. By this Response, claims 1, 11, and 21 have been amended.

Claims 1, 4, 6, 11, 12, and 19-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rienmueller et al. (U.S. Pat. No. 5,067,494) in view of Kotmel et al. (U.S. Pat. App. Pub. No. 2003/0055331) and in further view of Kotmel et al. (U.S. Pat. App. Pub. No. 2003/0051733). The Applicant respectfully traverses this rejection for at least the following reasons.

In order for a *prima facie* case of obviousness to be established, the Manual of Patent Examining Procedure, Rev. 6, Sep. 2007 ("MPEP") states the following:

> The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Federal Circuit has stated that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."

See the MPEP at § 2142, citing *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), and *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval). Further, MPEP § 2143.01 states that "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art" (citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007)). Additionally, if a *prima facie* case of obviousness is not established, the Applicant is under no obligation to submit evidence of nonobviousness:

> The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.
> *See* MPEP at § 2142.

As previously discussed, Rienmueller measures the entire respiratory volume of the patient via a scan triggered based on the respiratory activity of the patient. Col. 1, ll. 61-66. Rienmueller emphasizes that it measures the exact vital capacity of the patient, and not merely a portion thereof. Col. 2, ll. 8-9. Rienmueller does not teach or fairly suggest any sort of local lung imaging or local lung function data acquisition or usage. Rienmueller instead practices a complete and exact acquisition of full lung and patient imaging along with full lung capacity data. Rienmueller fails to teach or fairly suggest a system that scans at least a portion of a lung rather than an "entire cross-section of the patient". See col. 2, ll. 44-46. Rienmueller fails to teach or fairly suggest a system that combines any sort of lung function data with lung image data for use in diagnosis of a patient, let alone a system that combines local lung function data and local lung image data for use in diagnosis of a patient. See col. 1, ll. 65-66 and col. 2, ll. 8-9.

Kotmel et al. relates to analyzing an image data file for an individual lung compartment. Abstract. In Kotmel, conventional imaging files, such as CT scans, are used to diagnose, assess and monitor individual lung segments. Pg. 1, para. [0010]. An algorithm is used to identify a periphery of a lung compartment based on the image data. Pg. 2, para. [0019].

Among other things, Kotmel does not teach or suggest combining local lung function data and local lung image data for use in diagnosis of a patient. Kotmel does not teach or suggest examining local lung function data in conjunction with a lung cross-section image to detect abnormalities in the lung. While the Kotmel references discuss lung compartments, those references fail to disclose systems or methods wherein a plurality of lung portions or cross-sections are scanned at different locations and a plurality of images are reconstructed at those locations. Kotmel fails to teach, suggest, or motivate combining extracted local lung function data with the plurality of images for use in detection or diagnostic. However, these limitations are recited in the presently pending claims as amended.

Thus, distinctions are provided for at least these reasons to provide for allowability of the presently pending claims over the cited art of record.

Claims 2, 6, 9-10, 13-14 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rienmueller et al. in view of the two Kotmel references and in further view of Plewes (U.S. Pat. No. 4,773,087). The Applicant respectfully traverses this rejection for at least the following reasons.

As discussed above, the combination of Rienmueller and the two Kotmel references fail to disclose the limitations of independent claims 1, 11, and 21.

As previously discussed, Plewes relates to the quality of shadowgraphic x-ray images. Abstract. Plewes mentions the use of a "pre-scan" but states that the second scan must immediately follow a few seconds after the first scan or the pre-scan is invalid due to patient movement. Col. 10, ll. 25-44. However, Plewes does not teach or fairly suggest triggering a scan based on patient air flow. Plewes also does not teach or fairly suggest obtaining and using local lung function data or local lung image data. Furthermore, Plewes does not teach or fairly suggest scanning and obtaining lung image data during a sweep of at most 33 ms or at most 50 ms. Rather, Plewes simply states that a scanning beam may be varied in velocity, pulse width, and/or shape. Col. 6, ll. 32-44 and col. 7, ll. 34-42. Additionally, Plewes, like Rienmueller and Kotmel, fails to teach or suggest combining local lung function data and local lung image data for use in diagnosis of a patient, as recited in independent claims 1 and 11, from which claims 2, 6, 9-10, 13-14 and 18 dependent, respectively. Thus, Plewes fails to overcome the shortcomings of Rienmueller and the Kotmel references, as described above. Therefore, the Applicant respectfully submits that claims 2, 9-10, 13-14 and 18 should be allowable over the cited art of record.

Claims 5, 7-8, and 15-16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rienmueller et al. in view of the two Kotmel references and in further view of Sontag et al. (U.S. Pat. No. 6,298,260). The Applicant respectfully traverse this rejection for at least the following reasons.

As discussed above, the combination of Rienmueller and the two Kotmel references fail to disclose the limitations of independent claims 1, 11, and 21.

As previously discussed, Sontag et al. relates to a respiration responsive gating means and apparatus and methods using the same. Abstract. Sontag et al. fails to teach or suggest imaging a cross-section or portion of a lung as recited in independent claims 1 and 11. Sontag also does not teach or suggest obtaining local lung function data. Additionally, Sontag does not teach or suggest combining local lung function data and local lung image data for use in diagnosis of a patient. These limitations are recited in claims 1 and 11 of the present application.

Furthermore, Sontag does not teach or fairly suggest processing local lung function data to generate a plot of lung attenuation versus time. As described above, Sontag does not teach or suggest obtaining local lung function data. Additionally, the graph of Fig. 5 of Sontag shows air flow in a patient rather than lung attenuation or lung density versus time. See Fig. 5; col. 8, ll. 20-27.

Therefore, the Applicant respectfully submits that claims 5, 7-8, and 15-16 should be in condition for allowance over the cited art of record.

Therefore, the Applicant respectfully submits that any combination of Rienmueller and the Kotmel references does not teach or suggest all the limitations of independent claims 1, 11 and 21 or their dependent claims. The Plewes and Sontag references do not provide sufficient disclosure to remedy these deficiencies and thus fail to help establish a prima facie case of obviousness. The Applicant submits that claims 1, 11, and 21 have been amended to clarify scope of the claims and should place the claims in condition for allowance. The amended claims do not add new matter.

CONCLUSION

In general, the Office Action makes various statements regarding the pending claims and the cited references that are now moot in light of the above. Thus, the Applicants will not address such statements at the present time. However, the Applicants expressly reserve the right to challenge such statements in the future should the need arise (e.g., if such statement should become relevant by appearing in a rejection of any current or future claim).

The Applicant respectfully submits that the application is in condition for allowance. If the Examiner has any questions or the Applicant can be of any assistance, the Examiner is invited and encouraged to contact the Applicant at the number below.

The Commissioner is authorized to charge any necessary fees or credit any overpayment to the Deposit Account of GTC, Account No. 070845.

Respectfully submitted,

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